

REMARKS

Reconsideration and reversal of the rejections expressed in the Office Action of March 21, 2011 are respectfully contended in view of the application as amended. Support for the claim amendments is found at e.g., paragraph [23] of US 2006/137168 A1, and is consistent with original claim 3 in combination with the disclosure of the WO specification; see page 6, lines 17 to 30, and page 4 of the English translation thereof, third full paragraph.

Claims 12, 13, 15 and 16 were rejected under 35 U.S.C. §103(a) as being anticipated by Dawson et al., U.S. Patent No. 6,465,121 in view of Kazutoshi et al. (JP 05275085 A). The Office Action states, inter alia, that while Dawson et al. does not explicitly teach that the metal foil is expanded only after the coating is applied, Kazutoshi et al. teach that it is well-known in the art of battery making to apply a coating layer in the form of a high-conductivity thin film layer (Pb-Sn) or (Pb-Sn-Sb) on a metal sheet, followed by cold-rolling and subsequently expanding, resulting in an enhanced integration of the coating layer onto the surface of the metal sheet. According to the Office Action, it therefore would have been obvious to one of ordinary skill in the art to have applied the coating layer of Dawson et al., followed by expanding as taught by Kazutoshi et al.; alternatively, although Dawson et al. does not teach that the metal foil is expanded only after the coating is applied, the Office Action states that there are a limited number of choices available to a person skilled in the art for coating a base metal, either before or after expansion, and as such, it would have been obvious to one of ordinary skill in the art to coat the base metal of Dawson et al. prior to being expanded in order to enhance the electron conductivity of the expanded metal, since coating the metal before the expansion is also a suitable means of improving electron conductivity of the metal maintained even after being expanded.

The claims as amended overcome this rejection. Kazutoshi et al. discloses the preparation of a grid body for lead-acid batteries. The thin-film consisting of a specific lead alloy is applied to a surface of a cast body 1 of another lead alloy, followed by boiling and cold-rolling, and only subsequently the lead alloy sheet is expanded into the grid body. Applicants respectfully contend that one of ordinary skill in the art would never have combined this teaching with the teaching of Dawson et al., because the thin-film of Kazutoshi et al. is a completely inorganic material, namely a metal alloy which “*eats into the cast body 1*”, (see paragraph [17]) when it is cold-rolled. Since the cast body 1 and the thin-film 2 constitute a lead alloy, this means that the cast body 1 covered with the thin-film 2 together

should serve as an electrode in the lead-acid battery. In contrast, the present invention is directed to an expanded metal comprising a coating which can be useful as a current collector. For this purpose, it is necessary that the expanded metal is coated with a conducting material which further has the property of an anchoring or coupling agent for adhesion to the electrode; see for example page 4, lines 27-30 and page 6, lines 5-15 of the German PCT text (paragraphs [11] and [23] of US 2006/137168 A1). As described in the specification, the materials indicated in amended claim 12 for the coating have surprising properties which make them suitable for the present invention. As outlined on page 5, lines 9-13 of the German specification (second half of paragraph [12] of the US A1 document) it was surprisingly found that in a method wherein the film is first coated with the respective coating, and only then is expanded, the coating does not scale off upon expansion. This property may be due to the fact that the coatings selected for the present invention are sufficiently flexible and have very good adhesion to the metal to be expanded. Another advantage of the present invention has been shown, namely the fact that despite the openings in the expanded metal not being covered with the coating, due to the inventive method wherein expansion takes place after coating, use as a current collector is in no way negatively affected by the lack of the coating within the openings in the expanded metal. Applicants respectfully contend that starting from Dawson et al., one of ordinary skill in the art would not be able to arrive at these findings, neither by taking into account the teachings of Kazutoshi et al., nor having in mind that there would be a limited number of choices available. Therefore, prima facie obviousness is not established, and this rejection is overcome.

Please also note that on page 4, last paragraph of the Office Action, the Examiner raises an argument against claim 12, based on the claim language of: *“collecting a current by use of said expanded metal as a current collector;”* this language had been deleted in Applicants’ Amendment and Response of December 23, 2009. Therefore, this argument is now moot.

Claims 14 and 17 were rejected under 35 U.S.C. §103(a) as being anticipated by Dawson et al., U.S. Patent No. 6,465,121 in view of Kazutoshi et al. (JP 05275085 A) as applied to claims 12 and 15 above, and further in view of Kejha et al. (US 2006/0159999). This rejection is overcome based on the claims as amended and the previous discussion.

Please further note that the prior response submitted by Applicants was on December 23, 2009, and not December 23, 2010, as stated on page 6, paragraph 1 of the present Office

Action; the December 23, 2009 response was accepted by the prior Notice of Allowance mailed April 28, 2010.

The Examiner is invited to call the undersigned if any questions arise during the course of reconsideration of this matter.

Respectfully submitted,

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